

**JYOTI NIVAS COLLEGE AUTONOMOUS  
SYLLABUS FOR 2018 BATCH AND THEREAFTER**

**Programme: B.C.A**

**Semester: V**

**MOBILE COMMUNICATION**

**Course Code: 18BCAVE2A**

**No. of Hours: 60**

**COURSE OBJECTIVES:**

- To introduce the field of mobile communication and focuses on digital data transfer
- To address how mobile phone system works.
- To understand the technology in wireless local area networks.
- To focuses on mobility influencing applications ,security, or IP networks

**LEARNING OUTCOMES:**

- An ability to understand the field of mobile communication.
- An ability to understand how mobile phone system works
- This course aims to understand the technology in wireless local area networks and its latest trends.
- To focuses on mobility influencing applications ,security, or IP networks

**UNIT - I**

**14 HRS**

**Mobile Computing:** Introduction to MC, History, Applications, limitations, Simplified Reference Model, Different Generations of Wireless Networks- 1G, 2G, 3G, 4G.

**Wireless Transmission:** Frequencies for radio transmission, Signals, Antennas, Signal Propagation, Multiplexing, Modulation, Spread spectrum, Cellular networks.

**UNIT - II**

**14 HRS**

**Medium Access Control:** Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA (Fixed TDM, classical Aloha, slotted Aloha, CSMA), CDMA, comparison of S/T/F/CDMA.

**GSM:** Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security and GPRS.

**UNIT - III**

**10 HRS**

**Wireless LAN:** Infrared vs. radio transmission, Infrastructure and ad hoc networks.

**IEEE 802.11** – System architecture, Protocol architecture

**Bluetooth:** User scenarios, Architecture

**UNIT - IV**

**12 HRS**

**Mobile Network Layer:** Mobile IP- Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations

**Dynamic Host Configuration Protocol (DHCP):** Introduction.

**MANET:** Routing, Destination Sequence Distance Vector, Dynamic Source routing, Ad- hoc routing protocols

**UNIT - V**

**10 HRS**

**Mobile Transport Layer:** Traditional TCP, Classical TCP Improvements: Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP.

**Wireless Application Protocol:** Wireless Application Protocol (WAP) – Architecture – XML – WML Script – Applications

**REFERENCES:**

1. Jochen Schiller. Mobile Communication. Pearson Education, Delhi. 2011.
2. William Stallings. Wireless Communications Networks and Systems, Pearson Publications, 2008.
3. Stojmenovic and Cacute. Handbook of Wireless Networks and Mobile Computing. Wiley, 2002, ISBN 0471419028.

**JYOTI NIVAS COLLEGE AUTONOMOUS  
SYLLABUS FOR 2018 BATCH AND THEREAFTER**

**Programme: B.C.A**

**Semester: V**

**COMPILER DESIGN**

**Course Code: 18BCAVE2B**

**No. of Hours: 60**

**COURSE OBJECTIVES:**

- To understand the various phases in the design of a compiler.
- To understand the design of top-down and bottom-up parsers.
- To understand syntax directed translation schemes.
- To learn to develop algorithms to generate code for a target machine.

**LEARNING OUTCOMES:**

- Ability to design, develop and implement a compiler for any language.
- Able to design and implement LL and LR parsers.
- Able to design algorithms to perform code optimization in order to improve the performance of a program in terms of space and time complexity.
- Ability to design algorithms to generate machine code.

**UNIT - I**

**10 HRS**

**Introduction:** Compilers, The Analysis-Synthesis model of compilation, Analysis of the source program, Phases of a compiler, Compiler construction tools.

**Lexical Analysis:** The Role of the Lexical Analyzer, Input Buffering, Recognition of Tokens, The Lexical-Analyser Generator, Finite Automata, From Regular Expressions to Automata, Design of a Lexical-Analyser Generator, Optimization of DFA-Based Pattern Matchers.

**UNIT - II**

**15 HRS**

**Syntax Analysis:** Introduction, Context-Free Grammars, writing a Grammar, Top-Down Parsing, Bottom-Up Parsing, Introduction to LR Parsing: Simple LR, More Powerful LR Parsers, Using Ambiguous Grammars and Parser Generators.

**UNIT - III**

**10 HRS**

**Syntax-Directed Translation:** Syntax-Directed Definitions, Construction of syntax trees, Evaluation Orders for SDD's, Applications of Syntax-Directed Translation, Syntax-Directed Translation Schemes, and Implementing L-Attributed SDD's.

**Type Checking:** Type Systems, Simple type checker, Type conversions

**UNIT - IV**

**10 HRS**

**Intermediate Codes:** Intermediate Languages, Code Generation, Variants of Syntax Trees, Three-Address Code, Types and Declarations, Assignment Statements, Control Flow, Back patching, Switch Statements, Intermediate Code for Procedures.

## UNIT - V

15 HRS

**Code Generation and Optimisation:** Issues in the design of a code generator, Simple code generator, the principal source of optimization, Optimization basic blocks

### REFERENCES:

1. Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman, Compilers: Principles, Techniques and Tools, Second Edition, Pearson Education
2. Kenneth C Loudon, Compiler Construction-Principles and Practice, Cengage Learning.
3. Kenneth C Loudon, Andrew W Appel, Modern compiler implementation in C, Revised edition, Cambridge University Press.
4. J. P. Tremblay and P. G. Sorenson, The Theory and Practice of Compiler writing, TMH
5. R. Mak, Writing compilers and interpreters, 3rd edition, Wiley student edition.

**JYOTI NIVAS COLLEGE AUTONOMOUS  
SYLLABUS FOR 2018 BATCH AND THEREAFTER**

**Programme: B.C.A**

**Semester: V**

**CLOUD COMPUTING**

**Course Code: 18BCAVE2C**

**No. of Hours: 60**

**COURSE OBJECTIVES:**

- Understand the concepts, characteristics, delivery models and benefits of cloud computing
- Understand the key security and compliance challenges of cloud computing
- Understand the key technical and organisational challenges
- Understand the different characteristics of public, private and hybrid cloud deployment models.

**LEARNING OUTCOMES:**

- Articulate the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing
- Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.
- Explain the core issues of cloud computing such as security, privacy, and interoperability.

**UNIT - I**

**10 HRS**

Introduction- Cloud Services Requirements-Dynamic Cloud Infrastructure-Cloud computing characteristics- Cloud rudiments- Cloud Adoption-Cloud Deployment models- Cloud Characteristics-Security in Public Cloud-Public versus Private Clouds

**UNIT - II**

**10 HRS**

**Cloud as Service:** Platform-as-a-Service (PaaS)-Software-as-a-Service(SaaS)-Infrastructure-as-a-Service(IaaS)-Principal Technologies-Cloud Strategy-Conceptual Cloud Model-Cloud Service Defined.

**Cloud Solutions:** Introduction- Cloud Ecosystem- Cloud Business Process Management- Cloud Services Management- Cloud computing on Demand-Cloud Sourcing

**UNIT - III**

**10 HRS**

**Cloud Offerings:** Introduction-Information Storage,Retrieval,Archive and Protection-Cloud Analytics - Testing under Cloud-Information Security-Virtual Desktop Infrastructure-Storage Cloud

**Cloud Management:** Introduction-Resiliency-Provision-Asset Management-Cloud Governance-High Availability and Disaster Management-Charging Models, Usage Reporting,Billing and Metering

**UNIT - IV****15 HRS**

**Cloud Virtualization technology:** Introduction- Virtualization Defined- Virtualization Benefits- Server Virtualization- Virtualization for x86 Architecture-Hypervisor Management Software-Virtual Infrastructure Requirements.

Cloud infrastructure- -- Introduction-Storage Virtualization - Storage Area Networks-Cloud Servers Virtualization- Networking Essential to the Cloud

**UNIT - V****15 HRS**

**Cloud AND SOA :** Introduction- SOA Journey to Infrastructure-SOA and the Cloud- SOA Defined- SOA and Infrastructure as a Service- SOA based Cloud Infrastructure Steps- SOA Business and IT Services

**Cloud Mobility:** Introduction- The Business Problem- Mobile Enterprise Application Platform-Mobile Application Architecture Overview

**REFERENCES:**

1. Kumar Saurabh, "Cloud Computing" 2<sup>nd</sup> edition, Wiley Publisher.
2. RajkumarBuyya, Christian Vecchiola, and ThamaraiSelvi, "Mastering Cloud Computing", Tata McGraw Hill, 2013.
3. Ronald L. Krutz, Russell Dean Vines, "Cloud Security" Wiley Publisher, 15-Jul-2010.  
Robert Elsenpeter, Anthony Velte, Toby Velte, "Cloud Computing, A Practical Approach", McGraw-Hill Publisher 2009.